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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,969	06/27/2003	Michael John Gronseth	S01.12-0985/STL 11274.00	7433
27365	7590	01/20/2006	EXAMINER CHEN, TIANJIE	
SEAGATE TECHNOLOGY LLC C/O WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 - INTERNATIONAL CENTRE 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			ART UNIT 2656	
PAPER NUMBER				

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,969

Applicant(s)

GRONSETH ET AL.

Examiner

Tianjie Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 11-23 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 13, 14 and 16-22 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Non-Final Rejection (RCE)

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/26/2005 has been entered. Claims 1-5 and 11-23 are pending; among them claims 11, 12, and 23 are withdrawn from consideration and claims 1-5, 13-21, and 22 are under examination.

Election/Restrictions

2. Applicant's election with traverse of claims 1-5 and 13-22 in the reply filed on 11/21/2005 is acknowledged. The traversal is on the ground(s) that the requirement is not made timely. This is not found persuasive because as sated in MPEP §811 that the restriction/election requirement can be made at anytime before final rejection. In instant case, Application has made a RCE request and added new claims, which add extensive burden for further search. The time for Restriction/election Requirement is proper and the requirement is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Sone et al (US 5,634,259).

Claim 1, Sone et al shows a method for fabricating a slider in Fig. 10B) comprising the steps of: fabricating a plurality of transducers on a wafer (Column 7, lines 16-47); slicing the wafer into slider bars (Fig 11A) having a plurality of sliders formed there along and fabricating air bearing surfaces 33a and 33b C(Fig. 11B; column 7, lines 62-63) for the plurality of sliders along the slider bar; and etching a trench 43a prior to slicing the wafer to form a trailing edge of the air bearing surfaces of the plurality of sliders (Fig. 10B; column 7, lines 50-51).

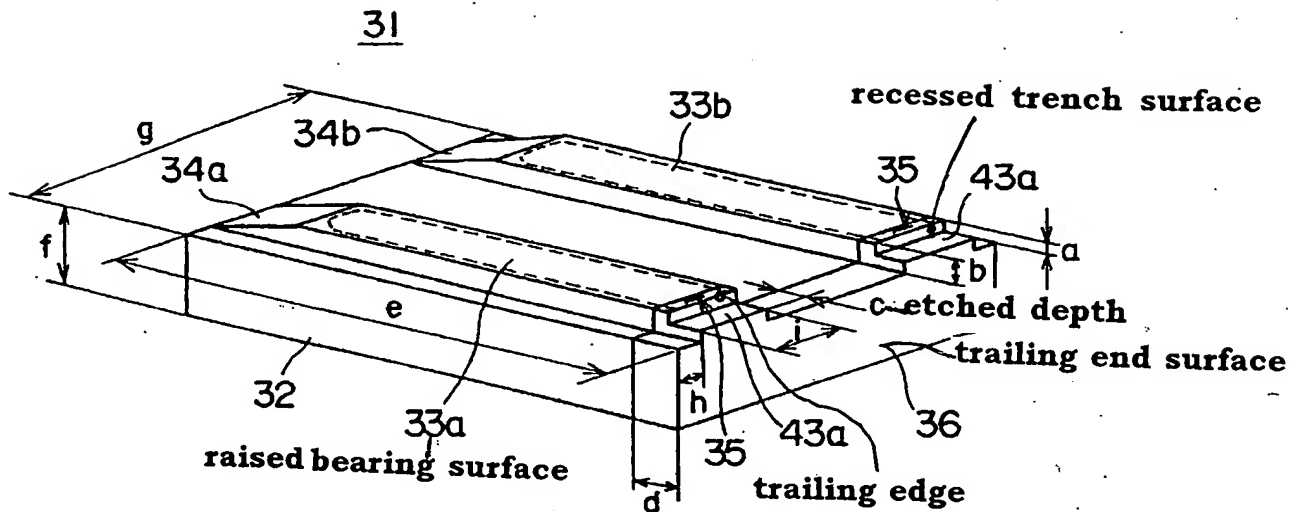
Claim 2, Sone et al further shows the step of: depositing an overcoat 36 layer prior to slicing the wafer and forming the trench in the overcoat layer (Column 7, lines 47-49).

Claim 4, Sone et al further shows a recessed surface of the trench (the bottom of groove 43a in Figs. 10B and 3A) forms the trailing edge for the raised bearing surfaces 33a and 33b of the sliders.

Claim 21, Sone et al shows a slider.

Claim 22, as described above, Sone et al shows a method for fabricating a slider in Figs. 10B and 3A (with a copy in next page with added marks) comprising the step of: fabricating a trench in a wafer (Fig. 10B) having a recessed trench surface spaced from a trailing end surface 36 of the slider to form a trailing edge of a raised bearing surface 33a of the slider defined by an etched depth c of the trench of the slider.

FIG. 3A



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone et al in view of Krounbi et al (US 6,722,019).

Claim 5, Sone et al fails to mention a step of: planarizing the slider or wafer prior to etching the trench.

Krounbi et al shows a method of fabricating magnetic heads, which includes a plurality of planarizing steps in fabricating magnetic head (Fig. 7A, column 5, lines 41-43). It is also well known in the art that planarizing is commonly used in the art in fabrication of thin film magnetic head to form better profile and obtaining better performance. It is obvious at the time the invention was made to one of ordinary skill in the art to include at least one step of planarizing the wafer in the magnetic head (transducer) forming process prior to etching the trench.

5. Claims 13, 14, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone et al in view of Yamakura et al (US 2003/0227716).

Claim 13, Sone et al shows a method with first process step of forming a trench as described above, but fails to further show the step of: fabricating a raised bearing surface and a recessed bearing surface on a disc facing surface of the slider, in second process step and the raised bearing surface formed in the second process step having a trailing edge defined by the trench fabricated in the first process step.

Yamakura et al shows the trench is fabricated in an inherent one process step and including the step of: fabricating a raised bearing surface 4a and a recessed bearing surface (the surface at left side next to the surface 4a in vertical direction) on a disc facing surface of the slider in an inherent second process step and the raised bearing surface formed in the second process step having a trailing edge defined by the trench fabricated in first process step.

It would have been obvious to one of ordinary skill in the art to add Yamakura et al's steps into Sone et al's method. The rationale is as follows: Yamakura et al teaches that a device produced by his method would reduce the flying height, and

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even if the disk-facing surface has been inclined or swayed, the air bearing surface is brought into contact with the surface of the disk, the magnetic head or the surface of the disk can be prevented from being damaged ([0036]). One of ordinary skilled in the art would have been motivated to adapt Yamakura et al's steps for reducing the risk of damaging of the head or disk.

Claim 14, Yamakura et al further shows the step of planarizing or lapping the disc facing surface of the slider addition to the one process step and the other process step (Fig. 10 A).

Claim 17, the trench is etched in Sone et al's first process step prior forming the raised bearing surface and the recessed bearing surface in the Yamakura et al's second process step.

Claim 18, Yamakura et al shows that the raised bearing surface and the recessed bearing surface and the raised bearing trailing edge of the raised bearing surface are etched to different orthogonal surfaces of the slider in the one and the other process steps.

Claim 19, Yamakura et al shows etching the trench relative to a first orientation in the one process step; and etching the recessed bearing surface relative to a second orientation in the other process step.

Claim 20, Yamakura et al shows a slider.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone et al in view of Horr et al (US Re.30601).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone et al in view of Yamakura as applied to claim 13, and further in view of Horr et al (US Re.30601).

Claim 3, Sone et al fails to show that the air bearing surfaces of the plurality of sliders along the slider bar are formed using a photoalignment masking process.

Claim 16, Sone and Yamakura et al does not show the raised bearing surface and the recessed bearing surface are formed using a photoalignment masking process in the second process step.

Horr et al show a photoalignment masking processing being used in fabrication of a wafer (column 2, lines 19-20).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to apply photoalignment masking process in fabrication. The rationale is as follows: Horr teaches that using of a photoalignment masking process can avoid physically touching with any portion of the photoalignment tool thus avoiding the possibility of contamination of the surface (Column 2, lines 27-32). One of ordinary skill in the art would have been motivated to use the photoalignment mask process for avoiding contamination of the surface.

Allowable Subject Matter

7. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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- With regard to claim 15, as the closest reference, the combination of Sone et al (US 5,634,259) and Yamakura et al (US 2003/0227716) shows a method for fabricating a slider including the step of: fabricating a trench on wafer having a recessed trench surface spaced from a trailing end surface of the slider to form a trailing edge of a raised bearing surface of the slider defined by an etched depth of the trench of the slider, and planarization step, **but fails to show** the step of planarizing or lapping the disc facing surface of the slider **prior to** the other process step and after the one process step.
- Applicant asserts that the trailing edge is fabricated on all the heads at the wafer level, which is more efficient and less costly than fabrication at the slider bar level (Specification, p. 6, lines 16-18).

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


TIANJIE CHEN
PRIMARY EXAMINER